

ABSTRACT OF THE DISCLOSURE

Effective management of finfish stocks to avoid or mitigate the threat of fish-killing phytoplankton is of increasing concern, particularly in temperate seas. Intensive spatial and temporal sampling is required to monitor and quantify 5 potentially harmful species, so that prior warning can be received of an imminent bloom. The use of large-subunit rRNA (LSU rRNA)-targeted oligonucleotide probes based on the sandwich hybridization assay to detect the fragile species *Heterosigma akashiwo* (Hada) Hada and *Fibrocapsa japonica* Toriumi & Takano (Raphidophyceae) is disclosed. Species-specific sandwich hybridization assays 10 were successfully developed for various Raphidophytes.